PATENT

IN THE UNITED STATES PATENT & TRADEMARK OFFICE

Applicant:	WELNICK ET AL.	)	
		)	Examiner A. Addy
Appl. No.	10/626,184	)	
		)	Art Unit 2617
Confirm. No.	1465	)	
		)	Atty. Docket No. CS23200RL
Filed:	23 July 2003	)	

Title: "Accelerated Allocation Of Neighbor Signals To Candidates In Cellular Communications Devices"

APPEAL BRIEF UNDER 37 CFR 41.37(c)

Assistant Commissioner for Patents
Alexandria, Virginia 22313

Sir:

Real Party In Interest

The real party in interest is Motorola Inc. by virtue of an assignment executed by the named inventor(s) and duly recorded in the Patent Office on 22 July 2003 at Reel/Frame: 014333/0348.

Related Appeals & Interferences

There are no related appeals or interferences.

Status of Claims

Claims 1-13 and 17-19 are pending and the subject of the instant appeal. The pending claims are reproduced in Appendix A.

Status of Amendments

A 37 CFR 1.116 amendment has been filed concurrently addressing non-substantive grammatical and idiomatic issues. The Claims in Appendix A are consistent with the claims as amended.

Summary of Claimed Subject Matter

Claim 1 is drawn to a method for allocating neighbor signals to a candidate set in a wireless communications device including determining a number of signals in an active set, and allocating signals to the candidate set more quickly when the number of signals in the active set is less than a threshold number than when the number of signals in the active set is greater than the threshold number (page 4: 9-17; page 6: 9- page 7: 11; page 7: 23 - page 8: 4).

Claim 9 is drawn to a method in a wireless communications device that allocates neighbor signals to a candidate set based on criteria considered over at least one scanning period comprising determining a number of signals in an active set, when the number of signals in the active set is greater than a threshold number, allocating neighbor signals to the candidate set using criteria considered over more than one scanning period

(page 5: 14-22; page 7: 12-15), and when the number of signals in the active set is less than the threshold number, allocating neighbor signals to the candidate set using criteria considered over fewer scanning periods than when the number of signals in the active set is greater than the threshold number (page 5: 14-22; page 7: 16-22).

Claim 17 is drawn to a method in a wireless communications device that allocates neighbor signals to a candidate set, comprising allocating signals to the candidate set based on signal allocation criteria, and dynamically changing the signal allocation criteria based on either a number of signals in an active signal set or on a signal quality of a strongest signal in the active signal set (page 5: 23 - page 6: 8).

Grounds of Rejection For Review on Appeal

Whether Claims 1-13 and 17-19 are patentable over U.S. Publication No. 2004/0203838 (Joshi) in view of U.S. Patent No. 6,058,319 (Krause) under 35 USC 103(a).

Arguments

Rejection Summary

Claims 1-13 and 17-19 stand rejected under 35 USC 103(a) as being unpatentable over U.S. Publication No. 2004/0203838 (Joshi) in view of U.S. Patent No. 6,058,319 (Krause).

Discussion of Claim 1

Regarding Claim 1, Joshi and Krause fail to disclose or suggest a

> ... method in a wireless communications device that allocates neighbor signals to a candidate set, the method comprising:
> determining a number of signals in an active set;
> allocating signals to the candidate set more quickly when the number of signals in the active set is less than a threshold number than when the number of signals in the active set is greater than the threshold number.

Contrary to the Examiner's assertion, Joshi does not disclose or suggest controlling the rate at which signals are allocated to the candidate set based on the number of signals in the active set. Joshi teaches determining the scope of the signal search (i.e., whether the performance of off-frequency searching is performed) based on the number of signals in the active set.

The various passages of Joshi referenced by the Examiner do not support the asserted rejection. At paragraph [0059], Joshi discloses that signals are promoted to/demoted from the active set based on whether the signal energy satisfies add or drop energy thresholds. At paragraphs [0065-70], Johsi discusses conditions (e.g., number of active set base stations, S/N threshold condition, among others) which form the basis for determining the criticality of (i.e., whether to perform) off-frequency searching. In Joshi, the rate at which (in other words how "quickly") signals are promoted to the candidate active set is not based on the conditions used to determine whether off-signal searching is performed. Joshi is silent on how quickly signals are added to the active set. In Joshi, at paragraph [0065], the number of signals in the active set relates only to the criticality of the need for off-frequency searching (i.e., the

scope of the search), not to how quickly signals are allocated to the candidate set.

The Examiner allegedly cites Krause to reinforce the putative teachings of Joshi. Like Joshi, however, Kraus also fails to disclose or suggest controlling how quickly signals are allocated to the candidate set based on the number of signals in the active set. At col. 2: 66 – col. 3: 5, Krause merely discusses quickly and reliably determining and promoting strong neighbor pilots to a candidate set. Joshi and Krause nevertheless fail to disclose or suggest "...allocating signals to the candidate set more quickly when the number of signals in the active set is less than a threshold number than when the number of signals in the active set is greater than the threshold number" as recited in Claim 1. Claim 1 is thus patentably distinguished over Joshi and Krause.

Discussion of Claim 2

Regarding Claim 2, Joshi and Krause fail to disclose or suggest in combination with Claim 1,

> ... allocating signals to the candidate set includes delaying the allocation of signals to the candidate set for a first delay interval when the number of signals in the active set is less than the threshold number, and
>
> delaying the allocation of signals to the candidate set for a second delay interval when the number of signals in the active set is greater than the threshold number,
>
> wherein the first delay interval is less than the second delay interval.

There is no basis in the prior support the Examiner's assertion that Claim 2 would have been obvious. Neither Johsi nor Krause discuss delaying signal promotion to the candidate set. Krause discloses only that signals should be promoted to the candidate set quickly. Claim 2 is thus further patentably distinguished over the art.

Discussion of Claim 4

Regarding Claim 4, Joshi and Krause fail to disclose or suggest in combination with Claim 1,

> ... when the number of signals in the active set is less than the threshold number, allocating signals to the candidate set more quickly only when the number of signals in the active set is less than a threshold number and when a quality of a strongest of the active signals is less than a first signal quality threshold.

Contrary to the Examiner's suggestion, neither Johsi nor Krause discuss allocating signal to the candidate set more quickly based on the number of signal in the active set and when the quality of the strongest of the active signals is less than a first signal quality threshold. Krause discloses only that signals should be promoted to the candidate set quickly. Claim 4 is thus further patentably distinguished over the art.

Discussion of Claim 6

Regarding Claim 1, Joshi and Krause fail to disclose or suggest in combination with Claim 1,

> ... the signals in the active set are assigned to fingers of a rake receiver,
>
> allocating signals to the candidate set more quickly only when the number of signals in the active set is less than the threshold number and when a most energetic rake finger has an energy greater than an energy threshold.

Contrary to the Examiner's assertion, Joshi makes no reference to allocating signals to a candidate set based on the number of signals in the active set and based on rake finger energy. At paragraph [0059], Joshi discloses that signals are promoted to/demoted from the active set based on whether the signal energy satisfies add or drop energy thresholds. At paragraphs [0065-70], Johsi discusses conditions (e.g., number of active set base stations, S/N threshold condition, among others) which form the basis for determining the criticality of (i.e., whether to perform) off-frequency searching. Claim 6 is thus further patentably distinguished over the art.

Discussion of Claim 7

Regarding Claim 7, Joshi and Krause fail to disclose or suggest in combination with Claim 1,

> ... allocating neighboring signals to the candidate set based on signal promotion criteria,
>
> allocating signals to the candidate set when the number of signals in the active set is less than the threshold number based on consideration of signal promotion criteria for not more than one scanning period.

Contrary to the Examiner's assertion, Joshi is silent on the number scanning periods over which signal promotion criteria are considered. At paragraph [0059], Joshi discloses that signals are promoted to/demoted from the active

set based on whether the signal energy satisfies add or drop energy thresholds. At paragraphs [0065-70], Johsi discusses conditions (e.g., number of active set base stations, S/N threshold condition, among others) which form the basis for determining the criticality of (i.e., whether to perform) off-frequency searching. Claim 7 is thus further patentably distinguished over the art.

Discussion of Claim 9

Regarding Claim 9, Joshi and Krause fail to disclose or suggest a

> ... method in a wireless communications device that allocates neighbor signals to a candidate set based on criteria considered over at least one scanning period, the method comprising:
>
> determining a number of signals in an active set;
>
> when the number of signals in the active set is greater than a threshold number, allocating neighbor signals to the candidate set using criteria considered over more than one scanning period;
>
> when the number of signals in the active set is less than the threshold number, allocating neighbor signals to the candidate set using criteria considered over fewer scanning periods than when the number of signals in the active set is greater than the threshold number.

Contrary to the Examiner's assertion, Joshi does not disclose or suggest allocating signals to a candidate set based on criteria considered over a number of scanning periods, wherein the number of scanning periods depends on the number of signals in the active set. Joshi teaches determining the scope of the signal search (i.e., whether the performance of off-frequency searching is performed) based on the number of signals in the active set.

The various passages of Joshi referenced by the Examiner do not support the asserted rejection. At paragraphs [0055-56], Joshi discusses the criteria for which signals are added to the candidate set. Contrary to the

Examiner's assertion Joshi does not discuss "scanning" in paragraphs [0055-56]. At paragraph [0059], Joshi discloses that signals are promoted to/demoted from, the active set based on whether the signal energy satisfies add or drop energy thresholds. At paragraphs [0065-70], Johsi discusses conditions (e.g., number of active set base stations, S/N threshold condition, among others) which form the basis for determining the criticality of (i.e., whether to perform) off-frequency searching. Joshi is silent on the number of scanning periods over which candidate promotion criteria are considered. In Joshi, at paragraph [0065], the number of signals in the active set relates only to the criticality of the need for off-frequency searching (i.e., the scope of the search), not to over the number of scanning periods candidate promotion criteria are considered.

The Examiner's reliance on Krause for allegedly suggesting how quickly signals are added to the candidate set is not remotely relevant to the subject matter of Claim 9. Joshi and Krause nevertheless fail to disclose or suggest "... allocating neighbor signals to the candidate set using criteria considered over fewer scanning periods than when the number of signals in the active set is greater than the threshold number." Claim 9 is thus patentably distinguished over Joshi and Krause.

Discussion of Claim 10

Regarding Claim 10, Joshi and Krause fail to disclose or suggest in combination with Claim 9,

> ... allocating neighbor signals to the candidate set using criteria obtained over a single scanning period when the number of signals in the active set is less than the threshold number.

Johsi is silent on number of scanning periods over which signal promotion criteria is considered. There is certainly no disclosure in Joshi that signal promotion criteria is obtained over a "single scanning period". Claim 10 is thus further patentably distinguished over the art.

Discussion of Claim 13

Regarding Claim 13, Joshi and Krause fail to disclose or suggest in combination with Claim 9,

> ... the signals in the active set are assigned to fingers of a rake receiver,
>
> allocating signals to the candidate set using criteria considered over fewer scanning periods only when the number of signals in the active set is less than the threshold number and when a most energetic rake finger has an energy greater than an energy threshold.

Contrary to the Examiner's assertion, Joshi makes no reference to allocating signals to a candidate set based on rake finger energy. At paragraph [0059], Joshi discloses that signals are promoted to/demoted from the active set based on whether the signal energy satisfies add or drop energy thresholds. At paragraphs [0065-70], Johsi discusses conditions (e.g., number of active set base stations, S/N threshold condition, among others) which form the basis for determining the criticality of (i.e., whether to perform) off-frequency searching. Claim 13 is thus further patentably distinguished over the art.

Discussion of Claim 17

Regarding Claim 17, Joshi and Krause fail to disclose or suggest a

> ... method in a wireless communications device that allocates neighbor signals to a candidate set, the method comprising:
>
> allocating signals to the candidate set based on signal allocation criteria;
>
> dynamically changing the signal allocation criteria based on either a number of signals in an active signal set or on a signal quality of a strongest signal in the active signal set.

Contrary to the Examiner's assertion, Joshi does not disclose or suggest dynamically changing the signal allocation criteria based on either a number of signals in an active signal set or on a signal quality of a strongest signal in the active signal set. Joshi teaches determining the scope of the signal search (i.e., whether the performance of off-frequency searching is performed) based on the number of signals in the active set.

The various passages of Joshi referenced by the Examiner do not support the asserted rejection. At paragraphs [0055-56], Joshi discusses the criteria for which signals are added to the candidate set. At paragraph [0059], Joshi discloses that signals are promoted to, or demoted from, the active set based on whether the signal energy satisfies add or drop energy thresholds. At paragraphs [0065-70], Johsi discusses conditions (e.g., number of active set base stations, S/N threshold condition, among others) which form the basis for determining the criticality of (i.e., whether to perform) off-frequency searching. In Joshi, the criteria on which the allocation of signals to the candidate set is based remains unchanged. Joshi fails to discuss anything about changing the criteria on which signal allocation to the candidate set is based, for any reason.

The Examiner's reliance on Krause for allegedly suggesting how quickly signals are added to the candidate set is not relevant to the subject matter of Claim 17. Joshi and Krause nevertheless fail to disclose or suggest "... dynamically changing the signal allocation criteria based on either a

number of signals in an active signal set or on a signal quality of a strongest signal in the active signal set." Claim 17 is thus patentably distinguished over Joshi and Krause.

Prayer for Relief

Kindly reverse and vacate the rejections of claims, in view of the discussion above, with instructions for the Examiner to allow said Claims to issue in a United States Patent without further delay and provide other relief warranted.

Respectfully submitted,

/ R K Bowler /

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Claims Appendix

1. (Original) A method in a wireless communications device that allocates neighbor signals to a candidate set, the method comprising:

determining a number of signals in an active set;

allocating signals to the candidate set more quickly when the number of signals in the active set is less than a threshold number than when the number of signals in the active set is greater than the threshold number.

2. (Original) The method of Claim 1,

allocating signals to the candidate set includes delaying the allocation of signals to the candidate set for a first delay interval when the number of signals in the active set is less than the threshold number, and

delaying the allocation of signals to the candidate set for a second delay interval when the number of signals in the active set is greater than the threshold number,

wherein the first delay interval is less than the second delay interval.

3. (Original) The method of Claim 2, delaying the allocation of signals to the candidate set for the first delay interval includes immediately promoting signals to the candidate set when a strongest of the active signals does not meet a signal quality threshold.

4. (Original) The method of Claim 1, when the number of signals in the active set is less than the threshold number, allocating signals to the

candidate set more quickly only when the number of signals in the active set is less than a threshold number and when a quality of a strongest of the active signals is less than a first signal quality threshold.

5. (Original) The method of Claim 4,

if the number of signals in the active set is equal to the threshold number,

allocating neighbor signals to the candidate set more quickly only when the number of signals in the active set is equal to the threshold number and when the strongest of the active signals does not meet a second signal quality threshold,

the second signal quality threshold less than the first signal quality threshold.

6. (Original) The method of Claim 1,

the signals in the active set are assigned to fingers of a rake receiver,

allocating signals to the candidate set more quickly only when the number of signals in the active set is less than the threshold number and when a most energetic rake finger has an energy greater than an energy threshold.

7. (Original) The method of Claim 1,

allocating neighboring signals to the candidate set based on signal promotion criteria,

allocating signals to the candidate set when the number of signals in the active set is less than the threshold number based on consideration of signal promotion criteria for not more than one scanning period.

8. (Original) The method of Claim 1, allocating signals to the candidate from a pre-candidate set.

9. (Original) A method in a wireless communications device that allocates neighbor signals to a candidate set based on criteria considered over at least one scanning period, the method comprising:

determining a number of signals in an active set;

when the number of signals in the active set is greater than a threshold number, allocating neighbor signals to the candidate set using criteria considered over more than one scanning period;

when the number of signals in the active set is less than the threshold number, allocating neighbor signals to the candidate set using criteria considered over fewer scanning periods than when the number of signals in the active set is greater than the threshold number.

10. (Original) The method of Claim 9, allocating neighbor signals to the candidate set using criteria obtained over a single scanning period when the number of signals in the active set is less than the threshold number.

11. (Original) The method of Claim 9,

when the number of signals in the active set is less than the threshold number,

allocating neighbor signals to the candidate set using criteria considered over fewer scanning periods only when the number of signals in the active set is less than the threshold number and when a strongest of the active signals does not meet a first signal quality threshold.

12. (Original) The method of Claim 11,

if the number of signals in the active set is equal to the threshold number,

allocating neighbor signals to the candidate set using criteria considered over fewer scanning periods only when the number of signals in the active set is equal to the threshold number and when the strongest of the active signals does not meet a second signal quality threshold,

the second signal quality threshold less than the first signal quality threshold.

13. (Original) The method of Claim 9,

the signals in the active set are assigned to fingers of a rake receiver,

allocating signals to the candidate set using criteria considered over fewer scanning periods only when the number of signals in the active set is less than the threshold number and when a most energetic rake finger has an energy greater than an energy threshold.

Claims 14-16 (Canceled).

17. (Previously Presented) A method in a wireless communications device that allocates neighbor signals to a candidate set, the method comprising:

allocating signals to the candidate set based on signal allocation criteria;

dynamically changing the signal allocation criteria based on-either a number of signals in an active signal set or on a signal quality of a strongest signal in the active signal set.

18. (Original) The method of Claim 17,

operating the communications device in soft handoff with the signals in the active set,

dynamically changing the signal allocation criteria when the number of signals in the active set changes relative to a threshold number.

19. (Previously Presented) The method of Claim 17,

operating the communications device in soft handoff with the signals in the active set,

dynamically changing the signal allocation criteria when the signal strength of the strongest signal in the active set changes relative to a signal strength threshold.

Evidence Appendix

(None)

Related Proceedings Appendix

(None)